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ORIGINAL ARTICLES.

KERATITIS DISCIFORMIS.

PROMPT RECOVERY FOLLOWING SUBCONJUNCTIVAL SALINE INJECTIONS.

By John Green, Jr., M.D.
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H. G., male, age 40, first seen May 6, 1913. Patient is a stocky, well built farmer, in good physical condition. Has not been sick for years. Denies syphilis. Seven years ago suffered an attack of inflammation in left eye, nature undetermined, but probably some sort of conjunctival affection as he made a prompt recovery without impairment of vision.

In the latter part of March, 1913, left eye again inflamed, ascribed by the patient to getting dust in the eye. Treated by an oculist in his home town with temporary improvement. Relapse two weeks before coming under my care. Complaints: Misty vision, photophobia, lacrimation.

The left cornea is the seat of a circular grey infiltration, homogeneous to naked eye inspection, but seen, with the loupe, to be made up of closely packed, roughly circular dots which tend to merge. The infiltration is situated in the middle layers of the cornea. It is bordered by a rim of deeper grey which sharply delimits the lesion from a ring of clear cornea. A few vessels pass deeply from the upper limbus to the upper part of the infiltration. There is moderate ciliary injection and photophobia. No iritis. Conjunctiva hyperæmic and velvety, with slight discharge. Eyeground normal, as well as could be determined through the corneal haze. No staining to fluoroscein. Hypæsthesia of the affected cornea. R.V. 5/5; L.V. 1/50. The clini-

cal picture left little room for doubt that I was dealing with an example of keratitis disciformis.

Treatment consisted of silver nitrate 1/5 per cent. once daily, followed by hot saline irrigations, argyrol 5 per cent. three times a day, and 10 per cent. dionin solution. After three weeks no material change in the appearance of the lesion, and but slight improvement in vision. May 27, injected subconjunctivally 15 minims 2 per cent. saline solution and repeated two days later. Patient allowed to go home. On his return one week later, I was gratified to find that the area of infiltration had shrunk and was thinner. V. 5/25. Ciliary injection and photophobia almost gone. From June 5th to July 28th he received weekly injections. On the latter date, the infiltration had cleared except for a small nebula at the corneal centre. All irritative signs had disappeared and V.=5/8.*

Keratitis disciformis, or keratitis annularis et disciformis, as it was named by Fuchs who first accurately described this form of corneal inflammation, is a disease of middle life. The following is a slight abridgment of Fuchs' description (Text Book, 4th Am. Edition, 1911, p. 259). Keratitis disciformis consists in the development in the middle layers of the cornea of a grey disk-shaped opacity, in the center of which a small more deeply clouded speck is commonly observed. The periphery of the disk is sharply delimited by a border of deeper grey which, in many cases, is made up of concentric lines. Rarely a small loss of substance develops over a circumscribed area. The irritative symptoms are not pronounced and hypopyon is absent or scanty. Superficial and deep vessels may extend into the infiltrate. The course of the disease is protracted.

The appearance of the cornea is sufficiently characteristic. The disease should, however, be carefully differentiated from keratitis profunda, which, to casual inspection, presents some features of similarity. In the latter a grey, more or less centrally located, opacity made up of striæ and dots *merges gradually* into transparent cornea. The opacity of keratitis disciformis appears homogeneous and is *sharply demarcated* from the clear surrounding ring of cornea.

Opinions differ as to the ætiology of the affection. According to Fuchs' view, the trouble begins as an ectogenous infection, the central greyer speck representing the point of entrance of the

*Patient seen again Oct. 7th. Eye had remained well during summer. V.=5/8+. Still faint central nebula.

bacteria. Trauma and herpes corneæ account, according to this author, for the epithelial lesion that precedes the infection. According to Erdmann (*Zeitsch. f. Augenheilk.*, XXII, p. 30) the tissue necrosis of disciform keratitis is due to disturbed innervation, i.e., the disease is to be classified as a neuropathic affection. This view is shared by Verhoeff (*Trans. Sec. on Ophthal., A. M. A.*, 1909) on account of hypæsthesia of the affected cornea and the frequent association with herpes. The only histologic examination is that of Meller (*Klin. Monatstbl. f. Augenheilk.*, Oct., 1905), who described an inflammatory infiltration surrounding a point of infection and extending superficially and into the depths of the cornea. The chronic irritation of the eye he regarded as an expression of the reaction of the healthy tissues to this infiltrate which rapidly becomes necrotic. Bacteriological examination was negative.

Keratitis disciformis has generally been regarded as a self-limited disease, practically uninfluenced by any form of treatment and terminating in more or less opacity, due to the formation of scar tissue. Posey, who in 1904 recorded the first American case, remarks that "therapeusis is unavailing." This view is shared by most text book writers, who content themselves with offering such therapeutic suggestions as would presumably be of benefit in any chronic corneal inflammation.

The prompt improvement and rapid cure following repeated subconjunctival injections of a 2 per cent. saline solution, after the failure of classical methods, suggests that, after all, the course of the disease may be shortened and the final outcome restoration without serious impairment of vision.

SEVERE IRIDOCYCLITIS WITH HYPOPYON FOLLOWING CATARACT EXTRACTION.

RECOVERY WITH EXCELLENT VISION.

By John Green, Jr., M.D.
ST. LOUIS, MO.

A mild form of iritis is a not unusual event in the post-operative course of cataract extraction. The trauma to the iris, especially in the combined operation, coupled with the irritating effect of cortical remains, accounts for an inflammatory reaction

which, as a rule, yields readily to mydriatics. The eye recovers perfectly, with only one or two delicate synechiæ to indicate the antecedent iridic inflammation.

Less frequently the inflammation is of the plastic type. Fibrinous debris clouds the anterior chamber and glues the iris to the lens capsule. Ciliary congestion and exquisite tenderness on pressure indicate the involvement of the ciliary body. Such an eye is seriously compromised and the surgeon may congratulate himself if recovery, which is apt to be delayed for a long time, eventually ensues. The outlook is even more dubious when, in addition to the signs of plastic inflammation, hypopyon develops. Under these conditions the therapeutic resources of the surgeon are taxed to the utmost, and a favorable outcome is to be hoped for rather than expected.

C. M., male, age 60, Irishman, had bilateral nucleocortical cataract. At the first observation, January 15, 1912, R.V. 5/10; L.V. 5/64. In 1910, he had undergone perineal prostatectomy. Always an excessive user of tobacco and in former years a free drinker. As the lens peripheries were fairly clear, he was enabled to continue his work by the daily use of a mydriatic (euphthalmine).

February, 1913, R.V. 5/32; L.V. 1/20. Blood pressure, systolic 160 mm. Hg. Diastolic 55 mm. Hg. Urine had low spec. grav., was alkaline and contained pus (chronic cystitis).

April 22nd: L. upward section with conjunctival flap-iridectomy. After several attempts delivery of a large amber-colored nucleus (delivery probably impeded by too restricted cystotomy). No visible cortex. Toilet easily accomplished. No loss of vitreous.

April 25th: Lips of wound in apposition. Anterior chamber reformed. Pupil black, semi-dilated. Atropin instilled.

April 28th: Wound healed. Ciliary injection. Aqueous cloudy. Ordered calomel gr. 1/10 every two hours and atropin 2 per cent. every three hours.

April 29: Fully developed iridocyclitis. Aqueous very cloudy; iris swollen and discolored, fails to respond to atropin, slight hypopyon. Intense ciliary congestion. Severe pain. Hand movements at one foot. Ordered calomel gr. 1/10 every hour. Locally, atropin, dionin (powder), hot boric packs. Lavage with hot bichloride 1/10000.

April 30th: All above signs and, in addition, hypopyon has

increased. Now reaches ¼ height of anterior chamber. Ordered urotropine, gr. 7½ every two hours. (Calomel stopped.) Locally, treatment continued. Applied leeches to temple. Patient seen by Drs. A. E. Ewing and L. H. Hempelmann in consultation.

May 1st: A.M., fairly good night, hypopyon slightly diminished: P.M., hypopyon nearly gone. Aqueous clearer. V. hand motion at two feet. Has received 75 grains urotropin in past 24 hours.

May 2nd: Urotropin continued, given in addition agurin (ascet-theobromine sodium), a diuretic, 3 grains, every four hours. Hypopyon entirely gone, pupil appreciably wider, aqueous less cloudy; vision, fingers at one foot.

May 3rd: Urotropin continued, but in diminished doses (gr. 15 three times a day). In addition, given sodium salicylate, gr. 15 every three hours.

From this date improvement in the eye was continuous. Utropine continued in diminished doses (30 grains daily) up to and including May 6th. From this date to May 25th, when patient left the hospital, general treatment consisted of aspirin, grains 10, three times a day. At the present writing, September 30, 1913, the eye is perfectly free from irritation. There are a few adhesions of the iris to a delicate secondary cataract. There is, however, a clear opening in the upper part of the membrane through which the fundus details can be clearly seen. Left vision +10+2 c. ax. 150 5/8+. Patient reads ordinary newspaper print with fluency.

Hexamethylenamin was first prepared by Butlero in 1860. It was introduced into therapeutics by Nicolaier in 1894, under the name "urotropin." It is formed by the action of ammonia on formaldehyde, according to the formula $4\ NH_3+6\ HCHO=(CH_2)_6\ N_4+6\ H_2O$. It is hydrolyzed on boiling with dilute acids, yielding formaldehyde and ammonia, and the same action ensues in neutral aqueous solutions when heated about 50° C. It is excreted through the kidneys, bile, pancreatic juice, saliva and milk, and is also found in the cerebral fluids, pleural effusions and in the aqueous. Hæmaturia has been noted after large doses.

Of special interest to ophthalmologists are the experiments of Gradle (*Ophthal. Record*, 1911, p. 110). He found that in rabbits urotropin is excreted into the anterior chamber three hours after ingestion, reaches its maximum excretion in seven

hours (about 1/75000) and is excreted in greater quantities after repeated paracenteses. He noted, further, that excretion into the anterior chamber is increased by the use of mydriatics; that urotropin in the concentration in which it occurs in the anterior chamber does not inhibit the growth of virulent organisms in the test tube. He also found that urotropin is excreted in the tears in greater concentration than in the aqueous. He believes that the drug in this weak concentration will at least weaken infecting organisms sufficiently to allow them to be more easily attacked and killed by the normal antibodies in the various secretions. As the author well remarks, "this would be especially true in cases of perforating injury or postoperative infection where but few organisms gain admittance to the eye, and where there is a constant change of aqueous humor due to the opening of the anterior chamber." Gradle remarks that pneumococci, which are the principal organisms in post-operative iritis and infection after perforating injury, grow with difficulty in the anterior chamber, being rapidly attacked by anti-bodies and killed.

I cannot disabuse my mind of the conviction that in this case an endogenous infection, which was rapidly becoming virulent, was converted into a milder form by increased antisepsis of the aqueous through the excretion of urotropin.

TWO CASES OF NÆVUS OF THE CONJUNCTIVA BULBI.

By Adolf Alt, M.D.
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The question of the origin and nature of nævi does not seem as yet to be quite settled. In the main the authorities are still divided in two camps. Ribbert maintains that pigmented nævi take their origin always from pigment carrying connective tissue cells, the chromatophores. Unna sees their source in the epithelial cells, and especially in those of the basal layer. Nævi of the conjunctiva offer an especially fine subject for investigation.

In Graefe's Archiv., Vol. LXXI, part 2 (1909), M. Wolfrum has published an exhaustive paper on extensive studies made on eleven cases of nævus of the conjunctiva, caruncle and plica

semilunaris. From these he is in a position to forcibly uphold the opinion of Unna, that the nævus cells are epithelial cells which have become separated from their neighboring cells and, so to speak, dropped down into the underlying tissue. He does not accept Kromayer's opinion, according to whom such epithelial derivates are later changed into connective tissue cells, and can find nothing to prove a connective tissue origin of nævi.

According to Wolfrum the development of a nævus of the conjunctiva from the epithelial cells can be studied in all its phases and happens about in the following manner. It begins with the disappearance of the intracellular fibrils and protoplasmic anastomoses, especially in the basal epithelia. Gradually one or more cells are in this manner freed from their union with the neighboring cells and at first lie isolated between them. Wolfrum states that in the great majority of the cases this takes place in the basal layer of the epithelium. He thinks this isolation is due to the absorption of the fibrils and offshoots by the cell itself. Such an isolated cell is gradually surrounded by fluid, which increases in quantity. As the pressure from this fluid gradually grows, it gets finally too strong for the opposing basal membrane and breaks it. In this way an opening is formed through which the epithelial cells get into the underlying connective tissue. This whole process is looked upon by Wolfrum as due to a state of increased activity in the cells; this is clearly demonstrated by the further wandering of such cells into the underlying tissue. The process is the same whether it concerns one or two cells or whole cell complexes. In the latter cases larger epithelial bodies intrude into the underlying connective tissue, giving pictures not unlike those which epitheliomata present. Having thus become isolated from the epithelial layer, and growing at the expense of the underlying tissue, such a nævus cell has assumed characteristics which approach those of the cells of malignant tumors rather closely. However, the nævus can exist for a long period and grow to some extent before it may assume a malignant character, and it may never assume it.

Among Wolfrum's conclusions we find the following:

"The pigmentations which we find in the conjunctiva must in most cases be looked upon as nævi, since besides the epithelial pigmentation we find in the subconjunctival connective tissue, too, more or less pigmented cell aggregations, the epithelial origin of which can with careful searching in the earlier stages be proven in every single instance.

"The capabilities of these cells to act histolytically and to wander they share with the tumors and must be considered as characteristics similar to those of the latter.

"Therefore tumors growing from these cell aggregations must be considered as carcinomata, yet not as carcinomata in the usual meaning of this word. Since they develop mostly from basal epithelial cells we must designate them as basal cell carcinomata."

It is not my intention, nor am I in a position to reopen a question which has engaged so many authors before this. I simply want to report here two cases of nævus of the bulbar conjunctiva which I have recently had occasion to examine, and which seem to illustrate some of the conditions described by Wolfrum particularly well, and thus to support his contentions and the opinions of those who find the origin of nævi in the epithelial tissue.

The first specimen was given to me by Dr. W. J. Charles, of this city, perfectly fresh after removal from the eye. It was taken from the nasal side of the bulbar conjunctiva of a young lady. It had been noticed as a small brownish spot for a number of years, had of late been seen to become darker and to increase in size. These, as far as I can remember, were the main points in the history of the case, which can now not be found.

The little tumor was very thin. It was hardened and fastened flat to a piece of cork in the usual manner.

On section the surface epithelium, which in places is quite deeply pigmented, is somewhat thickened. The chief alterations concern its basal layer. This has lost its regular arrangement here by the beginning and there by the finished isolation of a great number of its cells. Near the edges of the tumor such isolated cells have in small heaps dropped through the torn basal membrane into the underlying connective tissue, forming small pegs surrounded by open spaces which were probably filled with fluid. These isolated cells take on a very deep stain with hæmatoxylin. In the thickest part of the tumor the nævus cells are seen to have formed numerous cell cylinders which lie parallel to the surface in one or two rows, reminding one very much of the arrangement of the cell cylinders of an epithelioma. I have nowhere been able to find secondary cell cylinders leaving these primary ones at a more or less right angle, neither is there anywhere an inflammatory infiltration in their neighborhood.

The pigment, of a granular nature, varied considerably in quantity in the nævus cells, while larger numbers were perfectly

free from it; others were partly or totally filled with pigment varying in depth of color. While in most cells it is light enough to allow a good view of the nucleus, it is so dark in others that it is impossible to see the nucleus at all.

There are certainly no pictures in the sections of this tumor which could in any way lead one to think of a derivation of the nævus cells from connective tissue cells. (See Fig. 1.)

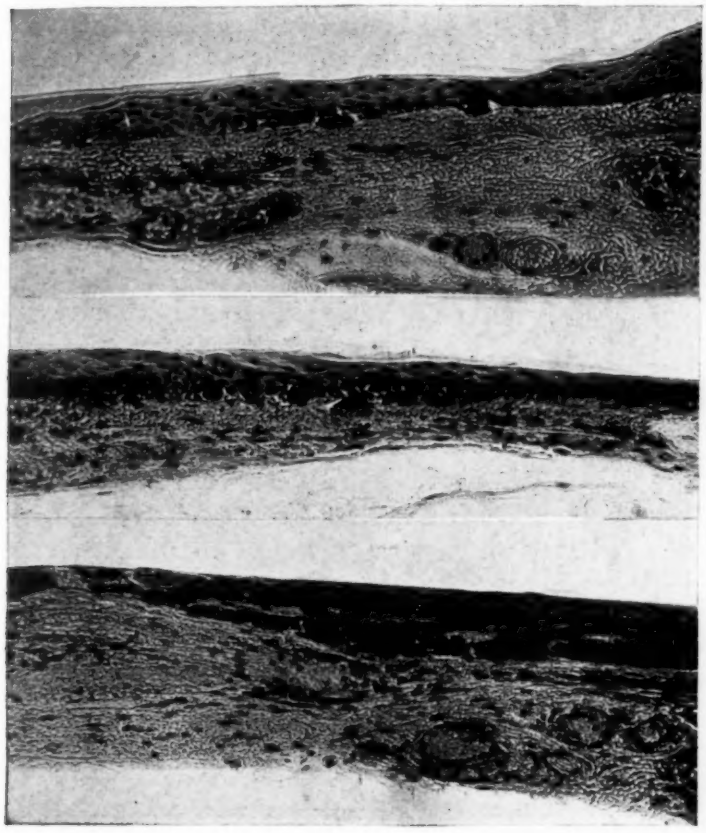

FIG. 1.

The second specimen is from a considerably older individual, a gentleman, who also stated that a brownish spot on the nasal side of the bulbar conjunctiva of his left eye had, after having been quiescent for many years, of late seemed to have grown appreciably in size and perhaps in darkness of color.

This little tumor, however, showed a very small amount of pigment, which, moreover, is quite light in color.

Sections from the periphery show a considerable thickening of the epithelium. Here the basal layer is very much disturbed; in some parts even the more superficial layers, too, seem to share in the process of cell isolation.

In some sections the nævus cells are found in the underlying

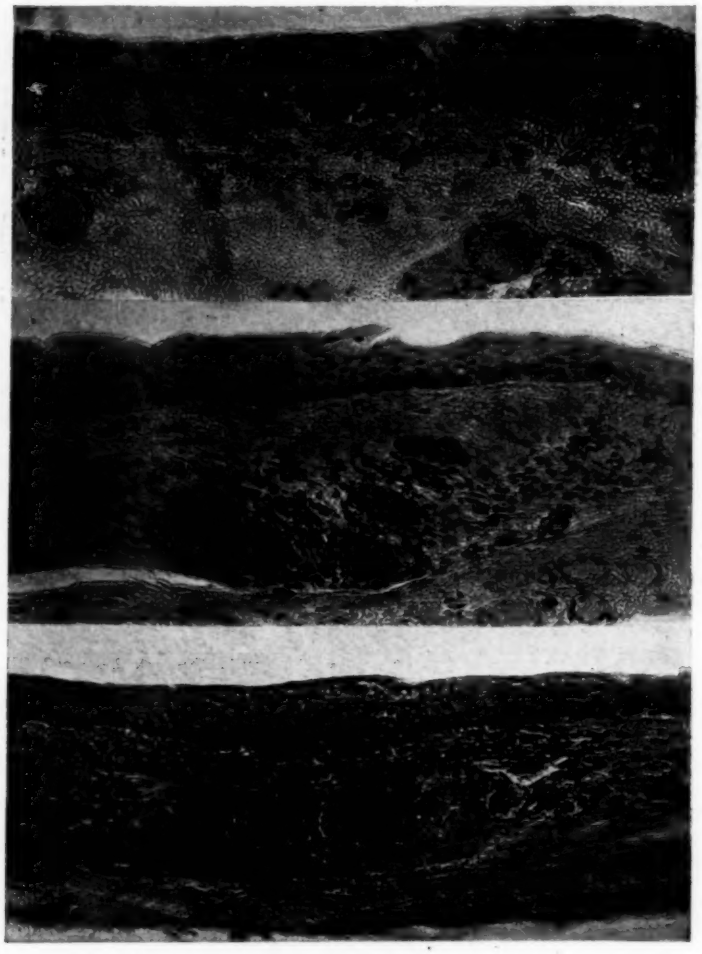

FIG. 2.

connective tissue in the form of more or less well defined cylinders; in others there seems to be no special arrangement, the cells lying in the tissue loosely or more densely packed resembling a round cell infiltration. (See Fig. 2.)

In the center of the little tumor the process of epithelial cell

isolation and dropping into the underlying connective tissue seems to be especially well shown. Here the basal membrane can be recognized easily, being stretched toward the underlying tissue so that it forms a series of festoon-like lines, through openings in which the epithelial cells have penetrated in large numbers into the connective tissue. It seems to me that the accompanying photograph is a particularly instructive one. (See Fig. 3.)

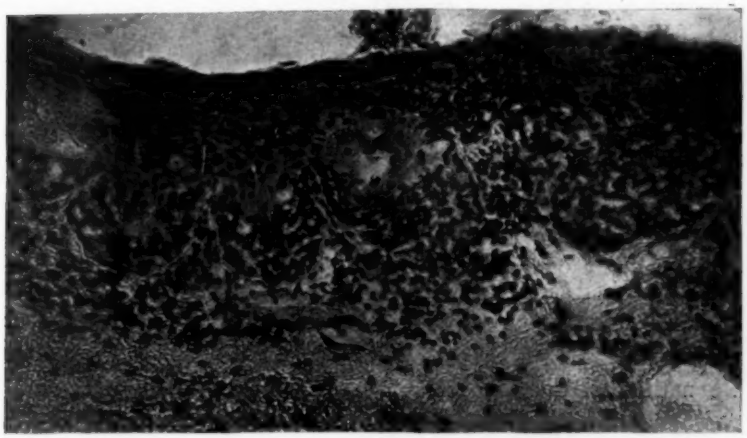

FIG. 3.

The question of the origin of pigmented conjunctival tumors from nævi has been one of much research, but it seems there can be no doubt that nævi often are the beginning of such tumors. It is well known that histologically it is sometimes quite difficult to place these pigmented tumors in their proper class, since they appear in parts to be sarcomatous, in others epitheliomatous. Since true nævi definitely seem to be formed by an alteration in the epithelial cells, and since, as Wolfrum says, we have to look upon them as a special kind of basal cell cancer, it would follow that it is wisest to remove every nævus of the conjunctiva as soon as it comes under our hands.

TRANSLATIONS.

SPONTANEOUS ABSORPTION OF SENILE CATARACTS.*

By Dr. L. Verrey,
LAUSANNE.

Translated by Adolf Alt, M.D.

Cases of spontaneous absorption of senile cataracts are sufficiently rare and the mechanism of this absorption is still so obscure that the few observations which to encounter may be given to each one of us must not be passed over in silence. We thought it of interest to report the following facts:

On November 15th, 1910, F. Simeon, from Villars-Epenay (Vaud), a man 66 years old, presented himself. His left eye had been operated on for cataract by Dr. Eperon in 1891. This operation had had a satisfactory result. Examination shows enmetropia and V.=1/6, not further improved by glasses.

He relates that his right eye had been slightly affected already when the left one was operated on, but that for a good many years its condition had remained apparently unchanged. Then the eye very gradually got worse, till since about six months he could no longer count fingers with this unoperated eye. During the summer of 1910, however, the eye seemed to become spontaneously clearer from day to day, and finally noticing in these last weeks a very pronounced improvement in vision, he had decided to consult us to find out whether glasses could not be prescribed which would help him to make still better use of this right eye.

The examination gave V.=1/6 with +1.5 D.; exactly the same visual acuity which the operation had given to the left eye. With oblique illumination the pupillary area is absolutely black, showing just a few disseminated whitish points which evidently represent the posterior lens capsule. With a medium wide pupil I cannot with the ophthalmoscope see anything behind the iris or in the depth of the vitreous body which might resemble the remainder of a dislocated cataract. A second examination, made a few days later, the pupil being dilated with atropin, gave similar results. I noted down at that time: pupil perfectly round, abso-

*Archives d'Ophtalmologie, September, 1913.

lutely no adhesions. No remnant of a thickened capsule in the lower part of the pupil or behind the iris. The ophthalmoscope revealed a large posterior staphyloma, about of the size of the diameter of the papilla or even more, to the temporal side of the disc with some irregular prolongations toward the macula. Examining the periphery of the retina I found downwards and a little removed from the ora serrata numerous white choroiditic patches surrounded by dense pigment deposits.

When I reported the results of my examination to Doctor Eperon he was kind enough to furnish me with the following notes. He writes: "Here is what I find in my case book concerning Mr. F. Left eye, extraction of mature cataract in 1891 with as good a result as possible. At that time the right eye had V.=1/30 with —10 D. (The left eye must have also had a high myopia, about 20 D.) The right showed a beginning nuclear and cortical cataract

"I did not see Mr. F. again until December 13th, 1898. His left eye was good; his right eye had a mature cataract, was slightly hypertonic; there were pains and injection. I prescribed pilocarpin, since he did not seem inclined to undergo a second operation. Mr. F. came again, and for the last time, on October 4th, 1906, suffering from another slight attack of glaucoma; the cataract was unchanged. I prescribed eserin. At that time he stated that he had no light perception whatever in the right eye."

The following points are of interest, it seems, in this observation:

(1) The early beginning of cataract formation. Mr. F.'s left eye was operated on for cataract when he was only 46 years old, and at that time the other eye had already begun to become cataractous. This, therefore, cannot be called a case of real senile cataract, but must be looked upon as a cataract due to causes other than those which age alone produces.

(2) As regards the right eye, in which the spontaneous absorption took place, Doctor Eperon reports two attacks of glaucoma, of sufficient severity at the examination on September 4th, 1906, that the patient stated that he had no light perceception at all.

(3) The third point which seems to be of interest concerns the lesions in the fundus of the eye.

a. Choroidal lesions as they are ordinarily found in high my-

opia; posterior staphyloma with prolongations toward the macula.

b. The presence of large choroiditic patches in the periphery of the choroid and downwards near the region of the ora serrata.

The recent researches of Louis Dor, which are collected in his interesting article in the Encyclopédie Française d' Ophtalmologie, tend to prove that the formation of a senile cataract is a process of hydration. According to Roemer this is due to a hydrating ferment circulating in the blood. This, then, is the most modern conception of the ætiology of senile cataract! However, it is permissible to reason that, if these are the only causes which may be adduced in the development of a cataract in aging and otherwise healthy individuals, the spontaneous appearance of a cataract in old individuals without any evidence of heredity, of a normal general constitution, is often due to local ocular causes, or, in other cases, to general causes which can be well demonstrated. In our case the influence of a high myopia and its choroidal complication appears incontestible.

Yet, though these local ætiological causes of cataract are pretty certain, it seems on the other hand that a more or less pathological condition of the eye may, if not provoke, at least favor the spontaneous absorption of a cataract. This fact was noted by Reuss, of Vienna,[1] in two cases published by him in the first of which the spontaneous absorption had followed apparently an attack of iritis in a myopic eye, while in the second one the absorption had been preceded by two inflammatory attacks (uncontrolled by the physician) and a fall on the head which raised the question of a possible tear in the lens capsule. However, for various reasons advanced by Reuss he did not think that this had happened. This author adds: "When we read all the published cases of this kind we are struck by the fact that in more than half of them ocular complications existed; glaucoma in seven cases, in an eighth one a glaucomatous excavation was found after the absorption was completed; in Reuss' first case an iritis; in Czermak's case old synechiæ; in Vossius' case the absorption coincided with an iridocyclitis; in Berlin's case an iritis; in Hilbert's case old choroiditic patches; the same in Reuss' second case; in the cases of del Monte, Brettauer and Mitvalsky numerous vitreous opacities. In summing up we find in 34 cases spontaneous absorption, 15 with complications."

Since the time when Reuss published his article (1900) I find that Trousseau,[2] also, like Reuss, notes "the curious combination of glaucoma and absorption of the cataract, as if it was apt to happen more easily in pathological eyes than in normal ones." Natanson,[3] having reported two cases of his own, mentions in his second paper 33 which had appeared previous to 1897. I draw the attention of those interested to this bibliography.

By my own personal researches, I found published since that time the cases of Cazales[4] (Béziers). Without viewing it as a relation of cause and effect, reports in his second case glaucoma preceding the spontaneous absorption. Then I find two cases of Augièras[5] (Laval) who, also, without giving any special importance to it, speaks of a severe iritis having preceded the absorption of the cataract in his first case.

Harms[6] in his paper gives the pathological anatomy of an eye enucleated on account of glaucoma following the dislocation of a partially absorbed crystalline lens. He points out especially the fact, already mentioned by von Hippel and others, that the capsular epithelium had disappeared.

In passing to this subject it may be well to formulate the two opposite opinions which are held regarding the role played by the disappearance of the capsular epithelium in the spontaneous absorption of a cataract. While Professor Eugen von Hippel[7] in giving the anatomical description of a case of advanced absorption of a cataract in which the capsular epithelium had altogether disappeared, concluded that it is necessary that the epithelium has primarily disappeared in order to allow the aqueous humor to penetrate into the lens and cause its gradual absorption; and while von Hippel[8] also points out the importance of this disappearance which favors the penetration of the aqueous humor, and questions what could cause this disappearance of the epithelium, Harms explains this disappearance by the long duration of the cataract which is stated as a fact in all cases of spontaneous absorption. For him this disappearance of the capsular epithelium is a fact which must be noted and is certainly of importance, yet he finds no relation of cause and effect. Concerning at least the cortical substance, he thinks it becomes absorbed before the epithelium disappears, which happens only in consequence of the beating against the capsule by the ballotting of the nucleus.

Axenfeld, cited by Harms, thinks like Natanson that the ab-

sorption of the cataract within the capsule is only the termination of a Morgagnian cataract of long standing and that the disappearance of the epithelium has nothing to do with the absorption of the lens.

However this may be, and to come back to our starting point, it seems well established that spontaneous absorption if not provoked is at least facilitated in a pathological eye, and that among the lesions cited glaucoma plays a preponderating role. For who can say that in the cases in which we are told of iritis, choroiditic lesions, or abundant vitreous opacities, these patients have not, perhaps, passed through one or more periods, more or less short or more or less prolonged, of an increased intraocular pressure, not sufficiently severe to drive the individual to consult a physician, nor being accompanied by severe pain or dimness or abolition of vision, which they would naturally attribute to the cataract. I am therefore inclined to believe that as the number of such cases increases and the attention is drawn to this point, we shall place an increasingly greater importance to glaucoma as an ætiological cause which, at least, facilitates the spontaneous absorption of cataract.

In what manner does glaucoma act? Is it by facilitating the entrance of aqueous humor into the lens through, so to speak, a break in the continuity of the capsular epithelium, this break being due to the long duration of the cataract and the consequent disorganization of the epithelium? This is simply a hypothesis. I leave to others the task of explaining this point, which cannot be cleared up except by many microscopical or perhaps experimental researches.

However, we might still consider whether in those cases the increase of the intraocuular pressure is not due to the increase in volume of the crystalline lens. This is well possible and even probable in some cases. It does, however, not alter what we have stated. Even if the primary cause of the glaucoma resides in such an increase in volume of the crystalline lens, its effects would anyhow be what we described; and if this augmentation in volume should really in the majority of the cases be the cause of the glaucoma, we would once more see the forces of nature working towards a *restitutio ad integrum*, or at least towards the restitution of function of the organ in the following circle: development of the cataract, swelling of the lens causing glaucoma, which in turn provokes or favors the absorption of the cataract.

It is not astonishing that there is a greater tendency to the development of these different pathological conditions in eyes previously diseased by myopic choroiditic patches, old iritis or choroiditis, than in an eye which has been perfectly healthy up to the beginning of a senile cataract. We can also easily comprehend that, as we have seen in our case, the spontaneous absorption of a cataract takes place especially in comparatively young individuals in whom the formation of a cataract is due rather to intraocular causes than to the hydrating ferment which is said to cause senile cataract, which I still consider as somewhat hypothetical.

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INTERNATIONAL TRACHOMA PRIZE.

The Royal Hungarian Minister of the Interior has offered a prize of 1000 kronen for the best work on the ætiology of trachoma. The condition is that the original work marks a valuable step forward. It must be sent in on June 30th, 1914 (address: Budapest I, Var, Belügministerium).

Papers which have first appeared in print in 1913 or 1914 can, also, be submitted. The authors may employ the Hungarian, German, French or English language.

The jury will be nominated by the Royal Hungarian Minister of the Interior. The judgment of the jury will be published at the 13th International Ophthalmological Congress at St. Petersburg in 1914.

Dr. Emil von Gróse,
Government Commissioner on Trachoma.

MEDICAL SOCIETIES

OPHTHALMIC SECTION,

St. Louis Medical Society.
May 7, 1913.

A Case of Anterior Polar Cataract with Nystagmus and Spasm of Facial Muscles.—By Dr. Clarence Loeb.

M. B., age 10, came to the clinic on April 19, 1913, complaining of difficulty in seeing at school. The right eye was apparently normal but the left eye had a leucoma lying almost directly over the pupil, and of considerable size. The pupil was small and drawn forward by adhesions to the posterior surface of the cornea. The mother stated that the child's left eye was inflamed at the age of three days and at no time has she been able to see anything. The vision was doubtful perception of light. On closing the right eye, the left made violent nystagmic movements, both horizontal and rotatory. On occluding this eye with the obturator and directing the child to look at the test chart, there was a spasm of the left orbicularis palpebrarum, accompanied by twitching of the whole left side of the face, especially of the corner of the mouth.

Under atropine, the pupil has dilated well, except at a couple of places where it is still adherent to the cornea. In the pupillary area is seen a small white spot, evidently an anterior polar cataract. Since the use of atropine the nystagmus and the spasms of the muscles are much less pronounced.

The theory of the ætiology of anterior polar cataract being a corneal ulcer, followed by perforation and anterior displacement of the lens, which resumes its original position when the cornea heals and the anterior chamber is established, but retains as a souvenir of the disease an opacity of its capsule and anterior lenticular layers, is no doubt well known to you, and receives a distinct support in these cases, and as proof of the causal and not accidental relationship of corneal and lenticular lesions, I am able to report a second case which came to the clinic a couple of days ago but which I am able to present this evening. There was the same history of blenorrhœa neonatorum, and the same condition of corneal leucoma, anterior synechia, contracted pupil and anterior polar cataract.

As the patient is very young—5 years—I shall have to gain his confidence before I can make any further test or demonstrate him.

As an interesting coincidence, I desire to report the case of a man who had some inflammatory condition of the right eye about ten years ago. I saw him a few days ago, for the first time, and found a dense leucoma of the cornea and only perception of light. On dilating the pupil with homatropine, white masses could be seen in the pupillary area, but whether they were remnants of the capsule or a mature cataract, I was unable to determine. The case is still under observation.

A Typical Case of Retinitis Pigmentosa: Mr. A. M., age 48, came to the clinic at the Alexian Brother's Hospital, on February 20th, complaining of poor vision. Left eye had been affected for five years and right eye for about two years. Gives a doubtful history of lues twenty years previously. R.E., V.=6/15; L.E., V.=1/15.

Ophthalmic examination; right disc slightly smaller and paler than normal; arteries are very small and thread-like. A few foci of pigment collections in retina. L.E. same as right and in addition the periphery everywhere shows foci of pigment degeneration of the retina in the form of more or less globular masses of pigment. Some are crescentic and a few are stellate. Further questioning revealed the history that in 1896 his vision had been very bad but had become better under treatment. Is worse at night than during day time. Is at present on mixed treatment and vision is, R.E. +6/8. L.E. =1/12; not improved by glasses. The visual fields, taken May 3rd, will be passed around. The patient has three children, whose eyes I have examined, and found normal.

DISCUSSION.

Dr. Post: The cause of congenital anterior polar cataract interests me, especially since a late experience in my practice. An explanation has been offered that it was due to perforation of the cornea in utero. This always seemed doubtful, if not impossible to me, till the experience which I refer to suggested how an ulcer of the cornea in utero might be caused. A little girl four or five years old was taken to Dr. Louis Butler, of this city, for an arthritis of the wrist of one arm. The inflammation was quite severe and afterwards attacked the elbow joint.

Shortly afterward (not before the onset of the arthritis) a very violent conjunctivitis developed, which proved to be gonorrhœal and the pus was loaded with gonococci. The conjunctivitis went through the ordinary course. The child recovered perfect sight. The child had, as I recollect, a vaginitis. We know that gonorrhœal vaginitis in children is not uncommon. The books speak of a metastatic gonorrhœal infection of the eye as attacking the uveal tract—the ciliary body and the iris—but I found a reference to gonorrhœal ophthalmia or conjunctivitis, being produced by metastasis from a uteral or vaginal gonorrhœa. The metastatic cyclitis or iritis usually appears after the vaginitis or urethritis has run its course. In gonorrhœa the gonococcus is found in the blood, and when there is a gonorrhœal inflammation of a joint, the gonococcus is sometimes found in the joint itself. This suggests the question,—could a gonococcus, starting from a vaginitis in a pregnant woman enter her general circulation, pass through the placenta into the fœtal circulation and from that, instead of passing through the serous membrane into a joint, pass through the mucous membrane into the conjunctival sac and there produce a gonorrhœal ophthalmia in utero? If this is possible, a perforating ulcer of the cornea might easily occur in utero, resulting in anterior polar cataract.

The gonorrhœal conjunctivitis in the case which I have referred to, and which I have reported elsewhere, seemed to come from the gonococcus in the blood and suggested to me the above possible explanation of congenital anterior polar cataract. I searched the literature at my disposal and found nothing that I could quote in my report.

Dr. Loeb: I am pretty certain that I have read about cases of metastatic gonorrhœal conjunctivitis, though I have never seen one.

Dr. Post: The books speak of a metastatic gonorrhœal infection of the eye, as I said, an infection which manifests itself by irritation of the iris and ciliary body. They speak of it as being a mild inflammation of the iris, not a gonorrhœal conjunctivitis.

Dr. Loeb: We are confusing two different conditions, the anterior polar cataract which is the result of the corneal ulcer and the anterior capsular which is a congenital condition, which Weeks ascribes to a partial retention of the pupillary membrane. I fail to see with that explanation why it is necessary to assume a gonorrhœal intrauterine inflammation. I am not well enough

acquainted with this to know whether we have true congenital cataract.

Dr. Luedde: I have seen anterior polar cataract in which there was no demonstrable corneal lesion. I do not think it is always necessary to assume a corneal ulceration to explain this type of cataract.

Inoperable Orbital Sarcoma Cured (?) by the Use of Coley's Fluid.—(Two cases)—By Dr. W. Luedde.

Coley's fluid consists of the mixed toxins of the streptococcus and bacillus prodigiosus. Its use in combatting the growth of sarcomata is empirical. It is most of all justified in cases where an inoperable secondary growth follows the unsuccessful surgical removal of the primary growth of our cases. The first case, T. W., white, age 12, in which a recurrence of the growth happened after two attempts at removal of the tumor mass and again after a complete exenteration of the orbit, has remained free from any sign of a relapse for nearly six years. He came under my observation through the courtesy of Dr. H. G. Mudd, who performed the last operation and directed the successful use of Coley's fluid. Except during an acute inflammation of the nasal sinuses, which caused a temporary swelling, there has been no disturbance whatever in the right orbit. The operative defect is perfectly covered by a flap from the right cheek. He is now 18 years old and appears to be strong and well. He is brought here in this connection because it was the success in his case which led to the use of the fluid in the recent case.

Miss E. M. W., white, age 22, was brought to my office by her physician October 27, 1911, on account of a swelling of the right upper eyelid at the nasal end which he had treated in vain with various eye washes. Pain which was aggravated by use of eyes in near work and transient diplopia, especially on first rising in the morning, were the only subjective symptoms. Sight normal, each eye. Firm swelling at upper inner angle of orbit. Advised immediate consultation with a rhinologist, whereon her physician took her to Dr. Chas. A. Leavy. A careful study of the nasal condition by Dr. Leavy rendered likely the diagnosis of a malignant growth beginning either in the frontal or ethmoidal cells on the right side. After nearly two months, during which there was a slow but positive increase in the size of the tumor, a gradual increase of subjective suffering as well as a slight de-

crease in the clearness of vision in the affected side, the patient consented to an exploratory operation. This showed that the process extended from the ethmoid and frontal sinuses back into the orbit too far to permit complete removal without interference with the right eye. Three months later, however, the patient's consent was obtained for a more radical operation. It was then attempted to remove the mass at the upper inner angle of the orbit by removal of the frontal eminence—exposing the frontal sinus—also removing the nasal bone and scraping the ethmoidal sinuses. There was barely a chance that the growth did not extend as deeply into the orbit as it seemed in the exploratory operation, and that the radical removal of these anterior structures with what could be reached of the tumor mass might include really all of it and save the patient's life. She stubbornly refused to have anything done which might imperil the sight of her right eye. The location of the tumor mass made any other procedure impossible. When the outer plate of the frontal sinus was removed, it was found that the inner plate was already eroded and that curettage of the frontal sinus contents showed brain tissue among the fragments. The case was then given up as hopeless so far as the surgical removal of the growth was concerned. The unexpected happened in that the patient recovered with little disturbance from this operative interference. Even the removal of brain substance caused no considerable shock. After consultation it was then decided to administer Coley's fluid. The details of its use will be brought out by Dr. Leavy's records. The effect of its use was to stop any increase in size of the mass. When last seen (September, 1913) she was apparently in excellent health. Her sight was normal in each eye and she had good binocular vision in spite of the injury to right superior oblique by the operation. There is, however, a noticeable deformity (thickening) at the base of the nose and toward the right orbit.

The report from Dr. Buhman on the material submitted for microscopic examination was as follows: Fragments from ethmoid show some bony tissues and a few wandering cells of a suspicious character. Sections from orbit almost entirely malignant new growth, with many giant cells and a few spiculæ of bone. Frontal no new growth. Deep ethmoid, no new growth. Fragments of brain tissue.

Dr. J. M. Smith: The following notes on the treatment in

this case with Coley's fluid are copied from the records of Dr. Leavy.

From May 6th to May 30th, sixteen injections were all made into the buttock usually at intervals of one to two days. On the 17th, after the injection of 9 m. there was a rise of temperature of 101°; there was a chill one hour after the injection. After an interval of five days the injections were resumed. By the 30th 15 m. were injected into the buttock with no reaction. All these injections were made with Parke Davis & Co. Coley's fluid. On the 15th of July injections were resumed, using the fluid furnished by Collis P. Huntington, of Philadelphia. Twelve m. were then injected into the buttck and 1 m. intranasally in the growth. Injections were given for five succeeding days until the 19th when 18 m. were injected into the buttock followed by chill and fever of 103°. The gluteal region was much swollen and infiltrated. Treatment was discontinued after five days. Then resumed by the injection of 15 m. in the buttock and 3 m. intranasally in the growth. After three injections, the injections into the buttock were discontinued and the quantity injected in the growth was increased. On August 1st 8 m. were injected in the growth followed by severe headache and fever of 102½°. Injections into the growth were increased until August 8th when patient received 14 m. into the growth, intranasally, followed by severe headache, chill and fever of 103°. Altogether 14 injections were made into the growth. Several times there was hæmorrhage from the nose. On August 10th, injections into the buttock were resumed beginning with 15 m. Eight injections were given into the buttock up to August 24th, on which date 24 m. were injected. The weight of the patient at this time was 119½ pounds, which showed a loss of 14½ pounds during the three and one-half months that the injections had been given. Patient went home and remained there for three weeks with no treatment. Returned very much improved physically, having gained 13 pounds.

On September 16th the injections were resumed with 5 m. in the gluteal region. Three days later 10 m. were given in the gluteal region and 2 m. in the growth. At the same time 12 m. were injected in the gluteal region. This was followed by a chill and fever of 102.5° From September 16th until October 30th, eight injections were made into the growth at intervals of from two days to three weeks, increasing from 2 m. to 4 m. at

the last injection on October 30th. On this date 12 m. were injected in the gluteal region and this was followed by a chill and fever of 102.5°. Twenty-eight injections were made into the buttock beginning September 16th and continuing until November 23rd, increasing from 5 to 16 m. at the last injection. Chill and rise of temperature followed several times without apparent special cause. On November 6th following the injection of 15 m. in the gluteal region a most severe hæmorrhage from the nose occurred. The nose had to be packed to stop the bleeding. When the injections stopped, the patient's weight was 142 pounds, a gain of 10 pounds during last two months of the treatment and a net gain of 9 pounds since the beginning of the treatment 5½ months before. Since then the patient's weight has continued to increase and she appears to be doing well in every way.

DISCUSSION.

Dr. Shahan: I would like to ask the doctor if there were any remains of the tumor?

Dr. Loeb: I would like to ask the vision of that eye?

Dr. Luedde: In answer to Dr. Shahan's question, there are still remnants of the tumor in the nose and in the orbital cavity, there is some little thickening.

As to vision, the vision in each eye was 15/12 when last examined.

Dr. Hooss: I would like to ask about the nose bleeding, was it of local origin or from the tumor itself?

Dr. Smith: That was always a local condition. It was slight at times, but sometimes the hæmorrhage was severe and on one occasion it was necessary to pack the nose to stop it.

A Case of Ocular Tuberculosis with Notable Astigmatic Variations.—By Dr. W. E. Shahan.

This paper was published in full in this Journal in the June number, 1913, p. 165.

DISCUSSION.

Dr. Luedde: I was much interested in Dr. Shahan's paper. He has followed the change in the refraction with unusual care. We are sure to find changes in the cornea wherever there is inflammation and swelling in the cornea or the anterior segment of the sclera. I do not think it is important to record the amount of change except to demonstrate that it does occur. We all know that marked changes in the refraction are produced by

infiltration and softening of the marginal segments, allowing the center of the cornea to be pushed forward. I have a specimen of such a patient in the later stages showing the gradual thinning of the different layers. In that case the globe was ruptured by a blow. The break in the cornea occurred at the limbus where resistance was least.

Dr. Hooss: Just one point, could it be possible that some of these conditions would be due to the general condition? How do you account for these frequent changes?

Dr. Shahan: The astigmatism was practically all corneal, due to changes in the sclera adjacent to the cornea and in the cornea itself. I feel reasonably certain that the tuberculous process was limited to the eye. His general condition was excellent. During the period of treatment his weight increased about 50 pounds.

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

Fourth Annual Session, Chicago, November 10 to 15, 1913.

Dr. Casey Wood, Chairman of the Section of the Congress on the Surgery of the Eye, Ear, Nose, Throat and Oral Cavity, announces a series of operative clinics especially arranged for the large attendance of surgeons that will undoubtedly be present at the approaching Annual Session. In the amphitheatres of the hundred or more hospitals and dispensaries of Chicago, several hundred surgeons can be accommodated, so that it will be possible to give all an opportunity of seeing the important operations already scheduled in the preliminary program. As is well understood, it is not possible for more than a limited number of spectators to view the details of the majority of operations done on the eye and the neighboring organs. This drawback is largely the case in all surgical procedures, but it is probably more pronounced in the measures undertaken by the operators in this section. The Committee is well aware of this difficulty and is making a special effort to overcome it. They propose to adopt such devices as will give the largest possible number of visiting surgeons the best view of the operative field. It is also the purpose of the Committee to correlate operating hours with hospital localities in such a manner as to utilize to the utmost the time at the disposal of members. To this end it will be imperative not only that admission to clinics be by ticket but that this rule

be strictly followed. Overcrowding of an operating room always means that no spectator gains an unobstructed or useful view of the work that is being done. The exact mode of distributing tickets will be announced later; it may here be said that it will be a case of "first come, first served."

Lieutenant-Colonel Elliot, F.R.C.S., will demonstrate his method of using the corneal trephine for the relief of glaucoma and, in all probability, a number of other distinguished foreign operators will participate in the actual work of this Section of the Congress—all of which will be announced in the completed program. Meantime, surgeons who practice one or more of the specialties of this Section are invited to be present and to benefit not only by attendance upon the clinics but by listening to the following papers on the evening program:

Operations on the Extraocular Muscles. By Dr. Edward Jackson, Denver, Colo.

Sympathetic Ophthalmia. By Dr. Harold Gifford, Omaha, Neb.

The Surgical Treatment of Suppurative Labyrinthitis. By Dr. Philip D. Kerrison, New York City.

The Indications for the Radical Mastoid Operation with the Steps Essential to Successful Healing. By Dr. F. Whiting, New York City.

The Surgery of the Faucial Tonsil as it Relates to the Functions of the Tongue and Soft Palate in the Production of Voice. By Dr. G. Hudson-Makuen, Philadelphia, Pa.

Peridental Infections, Their Relations to Neighboring Organs. By Dr. V. P. Blair, St. Louis, Mo.

Complete lists of operators with places, days and hours of their clinics in Section of the Eye, Ear, Nose, Throat and Oral Cavity will be announced later.

NEWS.

In the re-organized College of Medicine of the University of Illinois—formerly the College of Physicians and Surgeons, Chicago—the following compose the teaching staff of the Department of Ophthalmology: Casey A. Wood, Professor of Ophthalmology and Head of the Department; Wm. E. Gamble, Associate Professor of Clinical Ophthalmology; J. B. Loring and E. K. Findlay, Assistant Professors. Instructors: Charles C. Clement, Frederick D. Vreeland, Lawrence W. Whitmer, Georgiana Dvorak-Theobald, Herbert Walker and Marie A. Motis.

ABSTRACTS FROM MEDICAL LITERATURE.

By J. F. Shoemaker, M.D.,
St. Louis, Mo.

ÆTIOLOGY OF PHLYCTÆNULAR INFLAMMATION OF THE EYES.

Z. Belenky-Raskin (*Zeitschrift für Augenheilkunde,* June, 1913) reports the following results of his investigation of 100 cases of phlyctenular eye disease: The cutaneous tuberculin reaction was positive in ninety-two per cent. of the cases; among the children under five years of age the proportion was eighty-five per cent. The cases in which the reaction was negative do not justify the assumption that the phlyctenular inflammation of the eye is due to some other disease than tuberculosis, for some of the negative cases showed positive clinical signs of tuberculosis. He finds no ground for attributing the eye condition to autointestinal intoxication since indicanuria is not specially frequent. The fundamental tuberculosis demands attention in every case, in addition to the usual local treatment of the ocular lesion.

PREVENTABLE BLINDNESS—A CHALLENGE TO THE PROFESSIONS.

Henry Copley Greene (*Jour. A. M. A.,* September 27, 1913, Part 2) presents facts which he thinks justifies this conclusion: The problem of unnecessary blindness, which has so largely baffled and sometimes even disgraced the professions of medicine, business, statecraft and social service, demands for its solution the following measures:

1. A campaign of medical and lay research and education, government action, medical treatment and social work carried on, wherever possible, to limit and to remedy ocular disease, especially the more prevalent and damaging diseases and defects.

2. In the work of public education, special stress to be laid on the importance not only of ophthalmia neonatorum and trachoma, as causes of blindness, but also of glaucoma, syphilis and ocular injuries.

3. Medical schools to emphasize the interrelation of ocular and general disease, to teach their students the importance of

consultation with ophthalmologists and a high sense not only of human service but also of the physician's duty to uphold the health laws, both national and state.

Hospitals and clinics urged to provide ophthalmologists with every possible facility for the diagnosis and treatment of obscure cases, including the help of pathologists, syphilologists, brain specialists, Roentgen-ray specialists, and others.

4. The prevalence of blindness studied in each state in relation to its more prevalent causes, on a basis of reports of cases of blindness to state commissions or other central agencies.

5. To promote such intelligent study of the prevalence and results of eye diseases, a committee of the American Medical Association to request hospitals and ophthalmologists to include in all their eye records the following data: age; sex; single, married, widowed or divorced; birthplace; birthplace of parents; occupation or school grade; in possibly syphilitic cases, the number of children, still-born, dead or living, and in traumatic or possibly traumatic cases, the tool or machine used, and the manner of injury.

6. To facilitate the comparison of results the following standards of vision officially adopted: for blindness, the German standard, vision fingers 1 foot or less; practical blindness, vision less than 20/200 with glasses; partial disablement, vision 20/200 to 20/50, inclusive, with glasses.

7. Making it the duty of the state boards of health or of special private agents to study the needs of all localities; and in co-operation with medical schools and hospitals, to bring to the notice of young ophthalmologists opportunities for work in places especially requiring their services.

In remote districts, where peculiar conditions require it, such clinical expeditions as those of Dr. Stuckey in the Kentucky mountains.

In large cities, self-supporting evening clinics, with paid ophthalmologists in attendance, organized to compete with charlatans and inefficient practitioners and to provide self-respecting patients on low wages with facilities for expert treatment otherwise hard to secure.

In clinics and hospitals, the specialist's work made more efficient by insisting on proper treatment of diseases underlying local eye symptoms and by keeping patients under treatment long enough to get results.

8. Paid social workers made part of the regular staff of all eye clinics so as to increase their efficiency in the prevention of blindness from glaucoma, uveitis, etc., and to economize the work of the physicians in charge, as fast as the necessary funds can be secured.

9. In schools, the pupils' eyes regularly examined, preferably by trained physicians; records kept showing the effect of the school curriculum on eyesight, and parents induced or compelled to furnish necessary eye-glasses or treatment for the eyes. If necessary, the state "neglect law" amended to make this possible. In the management of institutions, state and local authorities to set a standard of work for the preservation of eyesight.

Especially in reform schools and prisons, in which the inmates are shut away from the usual medical facilities, ophthalmologists regularly in attendance; and close co-operation secured between ophthalmologists, general physician and the probation officers having oversight over discharged prisoners. All male gonorrhœal, and all syphilitic patients detained until cured.

10. Classes, especially adapted for children with defective eyesight, organized in all large cities, not only to provide education for children not properly inmates of institutions for the blind, but also to aid in the preservation of their sight.

School children with the vision of both eyes defective, or with one eye practically blind, guided toward occupations relatively free from ocular injuries.

11. State birth registration laws amended to secure birth notification within three days, and preferably within forty-eight hours; and warnings as to the danger of ophthalmia neonatorum sent to all mothers immediately on receipt of birth notices.

Obstetric clinics promoted to furnish adequate nursing and medical service to the poor in large cities. Midwives trained, registered and supervised in cities in which their services are necessary.

A suitable prophylactic distributed free to all physicians and to midwives. The use of this prophylactic required at all births in lying-in hospitals or in the practice of midwives, and at least recommended strongly to physicians.

The symptoms of ophthalmia neonatorum defined by the American Medical Association as redness and swelling of the eyelids and unnatural discharge from the eyes, within thirty days of birth, and made reportable by physicians as well as nurses and parents.

Physicians, as well as midwives, prosecuted whenever necessary to secure observance of the reporting law; and physicians admonished by their state societies for failure to obey the law or to secure adequate treatment and nursing for serious cases.

Local boards of health given ample powers over reported cases, subject to the supervision and control of the state boards in requiring adequate standards of treatment. Minimum requirements defined by the American Medical Association as the attendance of an ophthalmologist, or of a physician experienced in the treatment of ophthalmia neonatorum, assisted in all but the lightest cases by at least one trained nurse.

12. Trachoma made reportable in all states in which it is prevalent, proper treatment insured under public supervision, and in case children are affected, special schooling provided.

13. Workers for conservation of vision to join with associations for sex education, etc., (*a*) in setting adequate standards of treatment for syphilis, congenital and acquired; (*b*) in raising the physical standards of marriage, and (*c*) in urging the federal government to extend to syphilitic patients the system of exclusion *at the port of embarkation,* now applied to emigrants with trachoma.

14. Legislation against holiday injuries, etc., and popular education as to the dangers of non-industrial injuries of the eye.

Co-operation with both employers and employes in the elimination of industrial injuries.

Team-work with the American Association for Labor Legislation, to secure the enactment or amendment of factory inspection and workmen's compensation laws, so as to provide for study of industrial conditions affecting eyesight, protection from injury and disease, and special compensation, not merely for "total and irrecoverable blindness" of either or both eyes, but also for practical blindness, defined as reduction of vision to one-tenth of normal with glasses.

15. A joint committee of the American Medical Association and the existing state organizations for the prevention of blindness and the conservation of eyesight to provide for interchange of information through periodic reports from each state, published in ophthalmologic journals and the *Outlook for the Blind,* and as soon as any vital demand is manifest, to promote a federation of all state committees and commissions actively at work for the preservation of eyesight.

TRACHOMA AMONG THE INDIANS.

J. W. Schereschewsky (*Jour. A. M. A.*, September 27, 1913, Part 2), an officer of the Public Health Service which made an investigation as to the prevalence of certain infectious and contagious diseases among the Indians in the United States, reports the results of the investigation with regards to trachoma. Of the 39,231 Indians examined in twenty-five different states, 8,940 of them, or 22.7 per cent. were found to have trachoma. If this same rate prevails for the entire Indian population of the United States there are some 72,000 cases of this disease among these people. The disease was found to be most prevalent in the Indian boarding schools, 29.86 per cent. of the inmates of 133 of these schools being infected. In the Indian day-schools many cases were also found, 21.55 per cent. of such pupils examined being found suffering with the disease. Of the reservation Indians examined, 17.2 per cent. were found to be infected, a distinctly lower percentage than was found in the schools. Practically all ages were found represented in those afflicted thus, several cases being found in infants under one year of age. From observations and information given the officers, there can be no doubt but that the disease has been among these people for at least a generation, it being impossible to say just how long. Many cases were found where the vision had been markedly damaged by the usual complications of this disease, quite a number being blind in one or both eyes. The unsanitary housing conditions and want of knowledge of personal hygiene among these people is without doubt responsible for the wide dissemination of the disease among them. In the present wide-spread diffusion of trachoma among the Indians the author sees a serious menace to future white populations of Indian reservations.

EXPERIMENTAL STUDY OF INTRA-OCULAR PRESSURE AND OCULAR DRAINAGE.

Mark J. Schoenberg (*Jour. A. M. A.*, September 27, 1913, Part 2), in summarizing his article, says the study of the ocular drainage has revealed the following:

1. There is always a gradual reduction of intra-ocular pressure if the tonometer is applied on a normal eye for a certain number of seconds.

2. The rate of reduction of intra-ocular pressure varies not only in various eyes, but also in the same eye if taken at different periods.

3. Experimental evidence seems to indicate that changes of intra-ocular pressure in one eye may often be followed by similar changes of intra-ocular pressure in the other eye.

4. Neither the experiments on rabbits and cats nor the examinations in the operating room give any clue regarding the existence of a reflex or biochemical action starting from some distant region and influencing the intra-ocular pressure. The extra-ocular muscles play an important role in the various normal fluctuations of the intra-ocular pressure.

5. The ocular drainage in glaucomatous eyes differs from that of normal eyes. The slower the rate of drainage, the nearer the eye is to an acute attack or to absolute glaucoma; the more rapid the rate of drainage, the nearer to a state of compensated glaucoma. *A reduction of the rate of ocular drainage may mean latent glaucoma in spite of an intra-ocular pressure which is within the normal limit (below 26 mm. Hg.)*

The continuous fluctuations in the intra-ocular pressure and ocular drainage in normal eyes, the relative dependence of the intra-ocular pressure on the general blood-pressure, and of the latter on the ductless glands, and the probable relation existing between the intra-ocular pressure of both eyes, suggest that the present tendency of devising all possible operative procedures for the relief of intra-ocular pressure in glaucoma is only a palliative measure. It is not logical. The essence of glaucoma is not an increased intra-ocular pressure just as a high blood-pressure is not the essence of arteriosclerosis.

THIRTEEN CASES OF HEREDITARY TRANSMISSION OF RETINITIS PIGMENTOSA IN TWO GENERATIONS.

George H. Oliver (*The Ophthalmoscope,* July, 1913) reports the case of a woman with retinitis pigmentosa who had three daughters and one son, all of whom had this ocular condition. The first daughter had two sons and three daughters, one son and two daughters having the same disease. The second daughter had two sons and three daughters, one son and all the daughters being afflicted with the disease. The third daughter died unmarried. The son had three sons and three daughters, two sons having the eye trouble. So far as the author was able to learn none of the original case's ancestors or brothers or sisters were afflicted with the disease.